

We Claim:

[00106] 1. A method for monitoring the performance of a network including at least one node that communicates with the network using a transaction-based protocol, the method comprising:

monitoring particular characteristics of transaction-based protocol exchanges to and/or from said node; and

deriving round-trip network latency in response to said monitoring.

[00107] 2. The method of claim 1 wherein the monitoring step includes monitoring SYN bit acknowledgment.

[00108] 3. The method of claim 1 wherein said monitoring step includes monitoring TCP data packet acknowledgment.

[00109] 4. The method of claim 1 wherein said monitoring step includes monitoring TCP slow start turnaround.

[00110] 5. The method of claim 1 wherein said monitoring step includes monitoring TCP zero to non-zero window turnaround.

[00111] 6. The method of claim 1 wherein said monitoring step includes monitoring TCP FIN bit acknowledgment.

[00112] 7. The method of claim 1 wherein said deriving step includes deriving and subtracting delays associated with processing by a further node communicating over the network with said first-mentioned node.

[00113] 8. The method of claim 1 wherein said monitoring and deriving steps are performed at a plurality of network sites remote from said node, or co-located with said node.

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[00114] 9. The method of claim 1 further including reporting said derived results.

[00115] 10. The method of claim 9 wherein said reporting step comprises generating a web page.

[00116] 11. The method of claim 9 wherein said reporting step includes providing a web-page-based report over said network.

[00117] 12. The method of claim 1 wherein said monitoring and deriving steps are performed on a subscription basis.

[00118] 13. The method of claim 1 wherein said monitoring step includes coupling a monitoring node to said network and operating the monitoring node in a promiscuous mode.

[00119] 14. The method of claim 1 wherein said monitoring step includes monitoring transaction-based protocol traffic and breaking down response time into a plurality of different components including round-trip network latency.

[00120] ~~15.~~ A subscription-based remote monitoring service comprising:
initiating a monitoring subscription over the Internet, including obtaining at least one network address to be monitored;
remotely monitoring, over said network, transactions involving said network address; and
deriving network latency and device latency in response to said monitoring.

[00121] ~~16.~~ A remote network monitor comprising:
a receiver coupled to a network, said receiver receiving requests and responses from at least one node located remotely from said receiver on the network;
a protocol analyzer coupled to said receiver, said protocol analyzer isolating

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a latency calculator that calculates, in response to said logging, latency associated with said network and latency associated with said node.

monitoring HTTP traffic flowing between a web server and a web client;
and

wherein said logical dividing line is used to distinguish initial web server reply time from network transport time.

[00124] 19. A method of determining communications protocol latency including:

[00125] ~~20.~~ A method of determining communications protocol latency including:

monitoring TCP traffic between a server and a client; and
using an initial exchange between said server and said client and TCP header flags to determine whether an initial HTTP reply is retransmitted.

[00126] 21. The method of claim 20 further including using retransmission time as time to discount when calculating web server processing time.

[00127] 22. The method of claim 20 further including using retransmission time as time to discount when calculating TCP connect processing time.

[00128] 23. The method of claim 20 further including continually calculating transport-to-transport network latency to obtain minimum network latency for at least one TCP session.

[00129] 24. The method of claim 20 further including using round trip network latency as time to discount when calculating web server processing time.

[00130] 25. The method of claim 20 further including using round-trip network latency as time to discount when calculating TCP connect processing time.

[00131] 26. A method of calculating communication latency by monitoring a communications protocol over a network comprising:

monitoring protocol traffic between a client and a server over the network;

continually calculating network retransmission time; and

taking said calculated network retransmission time into account when computing web server processing time and TCP connect time and the number of packets lost.

[00132] 27. A method of determining whether web page content is static or dynamic including:

monitoring HTTP protocol traffic between a web client and a web server over a network; and

using an HTTP initial request and reply to determine if the content of at least one web page hosted by the web server is static or dynamic.

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[00133] 28. A method of determining web server processing time including:
monitoring communications between said web server and at least one client;
and
discounting at least one retransmitted HTTP Get or HTTP Post request from
said client as web server processing time.

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